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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

#14
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12-6-01

the Patent Application of)
Tetsuhiro SHIOMI) Group Art Unit: 2651
Serial No. 09/476,776) Examiner: Chu, K.
Filed: December 30, 1999)

For: Apparatus and Method for Adjusting the Tilt Angle of an
Optical Pickup Device

TRANSMITTAL OF AMENDED APPEAL BRIEF

Commissioner for Patents
BOX AF
Washington, D.C. 20231

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Sir:

Three copies of a Amended Appeal Brief for the above-
referenced application are being filed herewith. This Amended
Brief is in Response to the Notice of Non-Compliance dated
October 26, 2001. The government fee for \$310.00 was paid with
our Brief filed August 13, 2001. No additional fee is required.

Respectfully submitted,

[Signature]

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Dated: November 26, 2001

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AMENDED APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Sir:

This is an Amended Appeal Brief under 37 C.F.R. § 1.192 appealing the Final Rejection of the Primary Examiner dated July 20, 2001 (Paper No. 10) and the Notification of Non-Compliance dated October 26, 2001 (Paper No. 12). Each of the topics required by 37 C.F.R. § 1.192 is presented in this Brief and is labeled appropriately.

I. Real party in interest

Sony Corporation of Tokyo, Japan ("Sony") is the real party in interest of the present application. An assignment of all rights in the present application to Sony was executed by the inventor and recorded by the U.S. Patent and Trademark Office at Reel 010582, Frame 0082.

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II. Related appeals and interferences

There are no appeals or interferences related to the present application of which the Appellant is aware.

III. Status of claims

Claims 1-20, which are presented in the Appendix, stand finally rejected. Accordingly, the Appellant hereby appeals the final rejection of claims 1-20.

IV. Status of amendments

Following a first Office Action dated October 25, 2000, Appellant filed an Amendment on February 15, 2001. Following a Final Office Action dated May 8, 2001, Appellant filed a Request for Reconsideration under 37 C.F.R. § 1.116 on June 21, 2001 challenging the finality of the May 8, 2001 Final Office Action and the substantive rejection.

The Examiner reiterated both the finality and the substance of the Final Office Action in an Advisory Action dated July 20, 2001. Appellant filed an Appeal Brief on August 14, 2001, and the Examiner filed a Notification of Non-Compliance ("Notification") on October 26, 2001.

V. Summary of invention

The invention is directed to a disk recording and/or reproducing apparatus and method. The apparatus includes a tilt mechanism (see, e.g., Figs. 10 through 13) having a stepping motor (56) that rotates a pickup chassis (45) in an optical pickup device (48) and a control circuit (92) that sets the tilt angle of the optical pickup device (48) without a tilt sensor input (see, e.g.,

specification, page 38, line 29 to page 40, line 8). The method includes the steps of rotating a drive unit in one direction until the tilt mechanism reaches a reference position and rotating the drive unit in an opposite direction a predetermined number of times, thereby positioning the tilt mechanism in a neutral position (see, e.g., specification page 25, line 5 to page 26, line 21).

VI. References of record

In the Final Rejection of May 8, 2001, the Examiner relied upon the following prior art references:

- (1) U.S. Patent No. 5,311,497 to Takizawa et al. ("Takizawa"); and
- (2) U.S. Patent No. 5,027,336 to Sugiura ("Sugiura").

VII. Issues

In the May 8, 2001 Final Office Action, the Examiner rejected. Claims 1-20 as allegedly being unpatentable over Takizawa in view of Sugiura. The Examiner also refused to withdraw the finality of the May 8, 2001 Final Office Action. Consequently, the issues presented in this Appeal are:

- (1) whether the finality of the May 8, 2001 Final Office Action was proper; and
- (2) whether claims 1-20 are patentable over Takizawa in view of Sugiura.

VIII. Grouping of claims

For purposes of the issues raised in this appeal, claims 1 and 8 stand or fall together, claims 2, 3, 7 and

10 stand or fall together, claims 4 and 5 stand or fall together, claims 6 and 9 stand or fall together, claims 11 and 12 stand or fall together, claim 13 stands or falls alone, claims 14 and 16 stand or fall together, claims 15, 18 and 19 stand or fall together, and claims 17 and 20 stand or fall together. Arguments in support of the patentability of these claim groups are set forth below.

IX. Arguments

Procedural and formal issues

Appellant respectfully notes that the finality of the May 8, 2001 Office Action is improper because the Office Action sets forth a new ground of rejection that was not necessitated by Appellant's Amendment. MPEP § 706.07(a). The May 8, 2001 Final Office Action cites a new reference (U.S. Patent No. 5,027,336 to Sugiura) that could have been presented in the October 25, 2000 non-final Office Action because Appellant only amended claim 1 to include the limitation "without a tilt sensor input." This limitation was in originally-filed claim 8 and was therefore considered by the Examiner in the October 25, 2000 Office Action.

Appellant has filed a Petition Under 37 CFR § 1.181 requesting withdrawal of Examiner's new ground of rejection to this effect.

Advisory Action Item 4

MPEP § 706.07(a) states, "A second or any subsequent action on the merits. . .should not be made final if it includes a rejection, on the prior art not of record, of any claim amended to include limitations which should

reasonably have been expected to be claimed." In this case, the added limitation to claim 1 was already claimed in originally-filed claim 8, yet the Examiner set forth a new ground of rejection in the May 8, 2001 Final Office Action by presenting the Sugiura reference for the first time during this prosecution.

Because the May 8, 2001 Final Office Action presents the Sugiura reference for the first time to show a previously considered limitation, the finality of the May 8, 2001 Office Action is improper and should not be sustained.

Advisory Action Item 5

In item 5 of the Advisory Action, the Examiner alleged that Appellant did not respond to the rejection of independent claim 13. Appellant respectfully disagrees. The arguments Appellant set forth during prosecution applied to all of the pending claims as grouped in the Examiner's rejection. See, e.g., October 5, 2000 Office Action, p. 3; Appellant's February 15, 2001 response, p. 2 and Appellant's June 2, 2001 response, pp. 3 and 5-6.

Appellant further notes that neither reference teaches the method of claim 13 because neither reference even mentions a predetermined neutral position for the disk. The Examiner argued that Takizawa teaches the claimed method as an inherent feature in Figure 2, but the Examiner has not explained how simply rotating a motor in response to a tilt detection unit signal, as taught in Takizawa (col. 6, lines 15-28), necessarily results in the claimed method, which specifically recites rotating a drive unit in two different directions to

position a tilt mechanism to a predetermined neutral position. Takizawa does not even mention a neutral position or even describe the orientation direction of the motor. Item 5 of the Advisory Action is therefore incorrect.

§ 103 rejection

The Examiner rejected claims 1-20 as allegedly being unpatentable over U.S. Patent No. 5,311,497 to Takizawa et al. ("Takizawa") and further in view of U.S. Patent No. 5,027,336 to Sugiura ("Sugiura").

Advisory Action Items 1 and 2

In item 1 of the Advisory Action, the Examiner admitted that "Takizawa teaches every feature except a motor control circuit" but asserted that "it is well known and practiced that a motor control circuit is a necessary device to control a motor". The Examiner also asserted in item 2 of the Advisory Action that the optical head with tilting mechanism in Takizawa teaches the claimed control circuit because "Takizawa's motor and its inherent motor control device. . .perform tilting control." Appellant respectfully disagrees.

As noted throughout this prosecution, the Federal Circuit has clearly stated that inherency cannot be established simply by asserting that a certain thing may result from a given set of circumstances. To support an inherency argument, the disclosure offered by the Examiner must be "sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function" and that the missing claimed element is "necessarily present" in

the reference such that it would be recognized by persons of ordinary skill. Finnegan Corp. v. ITC, 51 USPQ2d 1001 (Fed. Cir. 1999), quoting In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981).

Further, the Examiner is not permitted to assert that Takizawa and Sugiura can be modified to teach the claimed invention absent a suggestion or motivation to do so. See, e.g., MPEP § 2143.01, MPEP § 2144.03 (which allows Examiners to take Official Notice only of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art).

With respect to the present application, the Examiner failed to show that the claimed control circuit is necessarily present in the Takizawa reference. Although the Examiner asserted that a motor control circuit is "well-known", the claimed motor control circuit is not capable of instant and unquestionable demonstration as being "well-known" in the art. More particularly, a mere control circuit, without more, does not instantly and unquestionably teach a control circuit that controls tilting in the claimed manner, particularly when neither reference even mentions a control circuit as admitted by the Examiner in the May 8, 2001 Final Office Action.

Contrary to the Examiner's assertion, Takizawa does not disclose or suggest the claimed invention because the claimed control circuit is not necessarily present in Takizawa simply because it has a tilt mechanism. The control circuit in the claimed invention avoids requiring an input from a tilt sensor to adjusting a tilt angle. By contrast, Takizawa depends on a tilt detection unit 40

to conduct tilt adjustment (Fig. 1; col. 5, line 67 and col. 6, lines 15-19). In other words, the operation of the Takizawa device depends on a component that claims 1 and 8 explicitly avoid. "Omission of an element with retention of the element's function is an indicia of unobviousness." MPEP § 2144.04.

Advisory Action Item 3 (first occurrence)

The Examiner argued in item 3 (first occurrence) of the Advisory Action that "claim 1 with the amended feature do not overcome the prior art '497 patent because Takizawa teaches a tilting motor but does not disclose any sensor input to his inherent motor control circuit." Appellant respectfully disagrees.

The alleged failure of Takizawa to disclose a sensor input to an inherent motor control circuit does not render the claimed invention obvious. Takizawa explicitly states that "the motor is rotated in response to a signal from the tilt detection unit 40" (col. 6, lines 16-17). Interpreting this phrase as a failure to disclose a sensor input involves improper hindsight reasoning because this supposed failure can be imputed to reasons other than controlling the tilt angle without a tilt sensor input.

Thus, the Examiner cannot simply assert that Takizawa's alleged failure to explicitly recite a sensor input renders the claimed control circuit, which sets the tilt angle without a tilt sensor input, obvious.

The Examiner also asserted that "the amended feature 'without a tilt sensor input' does not imply that a tilt sensing device is not needed....According to Applicant's written description, for example, the tilting motor 56 in

Fig. 15 is driven by a jitter measuring circuit 91 and a light detecting means to detect return time of the emitted laser beam." Appellant respectfully disagrees. The phrase "without a tilt sensor input" clearly indicates that there is no input from a tilt sensor. Jitter measuring circuits measure jitter, and light detecting circuits detect the return time of the laser beam, but neither circuit is a tilt sensor. The Examiner has not explained how Applicant's written description teaches using a tilt sensing device when the claims clearly state that no input from a tilt sensing device is even needed.

Advisory Action Item 3 (second occurrence)

The Examiner asserted in item 3 (second occurrence) of the Advisory Action that "a laser beam is a form of electromagnetic energy. It is not a detecting/sensing device. It cannot be used to detect the tilting of an optical disk."

However, Appellant has never argued that the laser beam itself acts as a detecting/sensing device, as alleged by the Examiner. Appellant argued that the laser beam can be used to detect the inclination, just as it can be used to detect and reproduce information on the information recording surface. For example, as is known in the art, CD players reproduce information on CD's based on the reflection characteristics of a laser beam from the CD surface. Thus, in this case, the laser beam is used to detect and reproduce information on the CD.

Appellant notes that just because the control circuit in the invention may use tilting information to set the tilt angle, it does not automatically follow that

the information must come from a tilt sensor. As noted in the June 21, 2001 response for rebuttal and explanatory purposes only, the laser beam can be used to detect and reproduce information on the information recording surface (specification, page 40, lines 9-20) as well as to detect the inclination of the optical disk (specification, page 39, lines 13-15). Using the characteristics of the same laser beam for tilt detection as well as information detection allows the invention to eliminate the need for a separate tilt sensor.

For the reasons explained above, nothing in the combination of Takizawa and Sugiura indicates that the claimed control circuitry is necessarily present in its own device, particularly when Takizawa clearly requires a tilt detection unit 40 in its tilt mechanism to operate a motor. Nowhere does Takizawa or Sugiura even contemplate or remotely suggest eliminating the tilt sensor input as explicitly recited in claims 1 and 8. The rejection of claims 1 and 8 is therefore improper and should be withdrawn.

Claims 2, 3, 7 and 10 are also not suggested by the cited art combination because the neither reference suggests the claimed stepper motor, let alone a stepper motor in a device having a control circuit that does not use a tilt sensor input. The rejection of claims 2, 3, 7 and 10 is therefore improper and should be withdrawn.

With respect to claims 4 and 5, the combination fails to suggest the claimed predetermined neutral position because neither reference even discusses a predetermined neutral position. The rejection of claims 4 and 5 is therefore improper and should be withdrawn.

Claims 6 and 9 are not suggested by the cited combination because neither reference teaches a control circuit that sets a tilt angle without a tilt sensor input, let alone such a control circuit having a memory. The rejection of claims 6 and 9 is therefore improper and should be withdrawn.

With respect to claims 11 and 12, the combination fails to render the claims obvious because the combination does not suggest an apparatus having the claimed control circuit, much less a device that also includes the cam, protrusion and biasing device recited in claims 11 and 12. The rejection of claims 11 and 12 is therefore improper and should be withdrawn.

Claim 13 is also not rendered obvious by Takizawa and Sugiura because neither reference teaches obtaining a predetermined reference position and a predetermined neutral position in the claimed manner. The Examiner asserted that the invention of claim 13 is an inherent feature of Takizawa. As explained above and throughout this prosecution, the Examiner has completely failed to show how the claimed method is "necessarily present" in Takizawa and Sugiura such that it would be recognized by persons of ordinary skill. Neither Takizawa nor Sugiura even mention rotating a drive unit to obtain reference and neutral positions, let alone suggest the claimed method. The rejection of claim 13 is therefore improper and should be withdrawn.

Claims 14 and 16 are also not suggested by the cited combination because neither reference even mentions using the synchronism of an electrically-induced magnetic field in tilt adjustment. The Examiner cannot rely on Official Notice because, as explained throughout this prosecution,

the Examiner has not shown how the claimed invention is capable of instant and unquestionable demonstration as being "well-known" in the art. MPEP §§ 2143.01 and 2144.03. The rejection of claims 14 and 16 is therefore improper and should be withdrawn.

With respect to claims 15, 18 and 19, the combination fails to suggest a method that sets the claimed predetermined neutral position because neither reference even discusses a predetermined neutral position. The rejection of claims 15, 18 and 19 is therefore improper and should be withdrawn.

The combination also fails to suggest claims 17 and 20 because nothing in the combination teaches obtaining the reference position and neutral position in the claimed manner, let alone incorporating the setting and positioning steps recited in claims 17 and 20. The combination fails to suggest the claimed predetermined neutral position because neither reference even discusses a predetermined neutral position. The rejection of claims 17 and 20 is therefore improper and should be withdrawn.

Thus, because the Examiner failed to establish a prima facie case of obviousness with respect to claims 1-20, the final rejection of claims 1-20 is improper and should not be sustained.

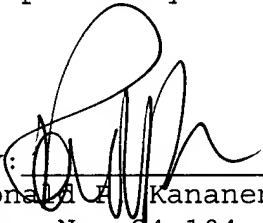
X. Conclusion

In view of the foregoing remarks, Appellant submits that the finality of the May 8, 2001 rejection is improper and should not be sustained. Appellant also submits that the final rejection of claims 1-20 is improper and should not be sustained. Therefore, a

reversal of the Final Rejection dated May 8, 2001 is
respectfully requested.

Respectfully submitted,

Dated: November 26, 2001

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XI. APPENDIXClaims on appeal

1. A disk recording and/or reproducing apparatus comprising:

a spindle chassis for rotationally supporting a turntable on which an optical disk, to/from which information is recorded and/or reproduced, is placed;

a pickup chassis, rotationally supported on said spindle chassis, for movably supporting an optical pickup device for writing and/or reading said information to/from said optical disk and being movable toward and away from the turntable; and

a tilt mechanism for adjusting a tilt angle of said optical pickup device with respect to said optical disk by rotating said pickup chassis with respect to the spindle chassis, said tilt mechanism comprising:

a stepping motor for rotating said pickup chassis with respect to said spindle chassis; and

a control circuit for driving said stepping motor to set the tilt angle at a predetermined neutral position without a tilt sensor input.

2. A disk recording and/or reproducing apparatus according to claim 1, wherein said control circuit drives said stepping motor to obtain a reference position by causing a loss of synchronism.

3. A disk recording and/or reproducing apparatus according to claim 2, wherein said control circuit drives said stepping motor by outputting a signal representing a number of steps corresponding to a tilt angle between the

predetermined neutral position and the reference position.

4. A disk recording and/or reproducing apparatus according to claim 1, wherein the predetermined neutral position is indicative of a middle position between a tilt minimum position and a tilt maximum position.

5. A disk recording and/or reproducing apparatus according to claim 1, wherein the predetermined neutral position is indicative of a position at which an optical disk having no warp is reproduced most preferably.

6. A disk recording and/or reproducing apparatus according to claim 3, wherein said control circuit includes a memory for storing the predetermined neutral position.

7. A disk recording and/or reproducing apparatus according to claim 2, wherein said stepping motor is assembled on said tilt mechanism in such a manner that an electrical phase of said stepping motor is coincident with a mechanical phase of said tilt mechanism.

8. An apparatus for adjusting the tilt angle of an optical pickup device, comprising:

a first chassis assembly;

a second chassis assembly rotationally supported on said first chassis;

a tilt drive mechanism mechanically engaged with said second chassis assembly; and

control circuitry, having no tilt sensor input, electrically connected to said tilt drive mechanism, said

control circuitry outputting a control signal to said tilt drive mechanism.

9. An apparatus for adjusting the tilt angle of an optical pickup device according to claim 8, wherein said control circuit comprises a memory storage device.

10. An apparatus for adjusting the tilt angle of an optical pickup device according to claim 8, wherein said tilt drive mechanism comprises:

a stepper motor connected to receive the control signal output from said control circuitry.

11. An apparatus for adjusting the tilt angle of an optical pickup device according to claim 10, wherein said tilt drive mechanism further comprises:

a cam having a portion mechanically engaged with said stepper motor, and a spiral surface mechanically engaged with said second chassis assembly.

12. An apparatus for adjusting the tilt angle of an optical pickup device according to claim 11, further comprising:

a protrusion extending from an end of said second chassis assembly, and located proximate said spiral surface; and

a biasing device having a fixed end and a free end, said fixed end being attached to said first chassis assembly, and said free end being in contact with said protrusion, thereby continuously biasing said second chassis assembly onto said spiral surface.

13. A method of adjusting the tilt angle of an optical device tilt mechanism to a predetermined neutral position, the method comprising the steps of:

rotating a drive unit in a first direction until the tilt mechanism reaches a predetermined reference position; and

rotating the drive unit in a second direction, opposite to the first direction, a predetermined number of rotations, thereby positioning the tilt mechanism to the predetermined neutral position.

14. A method of adjusting the tilt angle of an optical device tilt mechanism according to claim 13, wherein the predetermined reference position coincides with a loss of synchronism between an electrically induced magnetic field in the drive unit and a mechanical magnetic field in the drive unit.

15. A method of adjusting the tilt angle of an optical device mechanism according to claim 13, wherein the predetermined neutral position coincides with a position halfway between a tilt mechanism minimum tilt position and a tilt mechanism maximum tilt position.

16. A method of adjusting the tilt angle of an optical device mechanism according to claim 13, further comprising the step of:

synchronizing an electrically induced magnetic field phase of the drive unit and a mechanical magnetic field phase of the drive unit, prior to rotating the drive unit in the first direction.

17. A method of adjusting the tilt angle of an optical device tilt mechanism according to claim 16, wherein said synchronizing step comprises:

electrically energizing a portion of the drive unit;
and

assembling the drive unit to the tilt mechanism with the tilt mechanism positioned to the predetermined reference position.

18. A method of adjusting the tilt angle of an optical device tilt mechanism according to claim 13, further comprising the steps of:

retrieving the predetermined neutral position from a memory device, prior to rotating the drive unit in the second direction.

19. A method of adjusting the tilt angle of an optical device tilt mechanism according to claim 18, further comprising the step of:

setting the predetermined neutral position, prior to rotating the drive unit in the first direction.

20. A method of adjusting the tilt angle of an optical device tilt mechanism according to claim 19, wherein said setting step comprises the steps of:

positioning a reference optical disk proximate the optical device, said reference optical disk having no warp;

generating a read signal by reading information recorded on the reference optical disk;

setting the predetermined neutral position to
coincide with a predetermined level of the read signal;
and

storing the predetermined neutral position in the
memory device.

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